

TEST DATA OF MGS301212

Regulated DC Power Supply
January 6, 2011

Approved by : Kazunari Asano
Kazunari Asano Design Manager

Prepared by : Sho Saito
Sho Saito Design Engineer

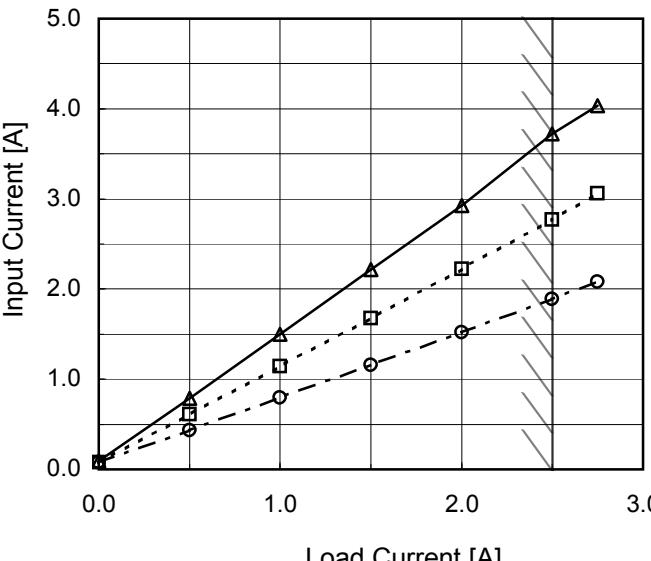
COSEL CO.,LTD.

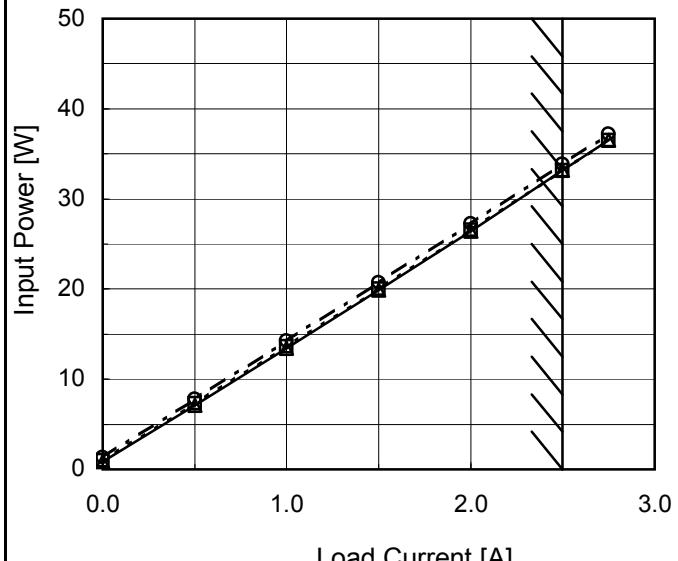
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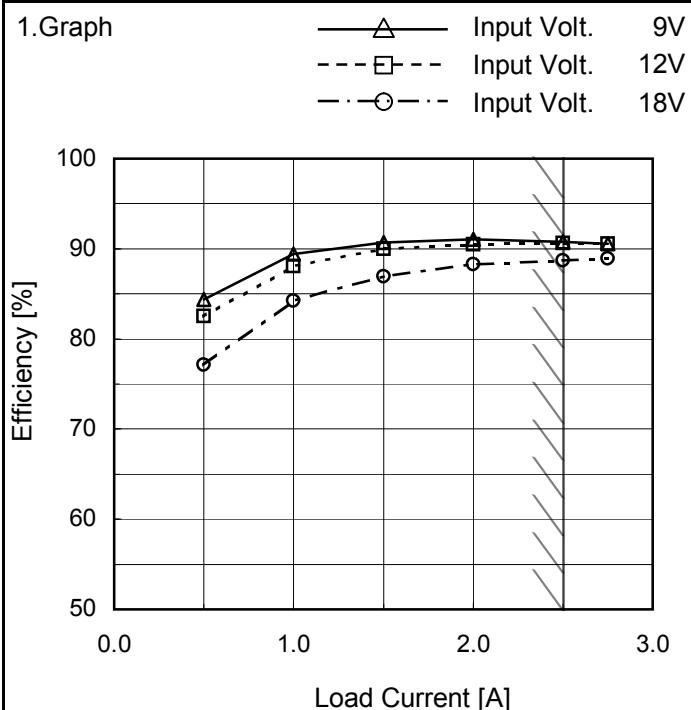
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Item	Efficiency (by Input Voltage)	Testing Circuitry	Figure A																														
Object	—																																
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<p>The graph plots Efficiency [%] on the y-axis (50 to 100) against Input Voltage [V] on the x-axis (6 to 22). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show a slight decrease in efficiency as input voltage increases. A slanted line on the graph indicates the rated input voltage range.</p> <table border="1"> <thead> <tr> <th>Input Voltage [V]</th> <th>Efficiency Load 50% [%]</th> <th>Efficiency Load 100% [%]</th> </tr> </thead> <tbody> <tr><td>8.5</td><td>89.3</td><td>89.5</td></tr> <tr><td>9.0</td><td>90.3</td><td>90.7</td></tr> <tr><td>10.0</td><td>90.2</td><td>90.9</td></tr> <tr><td>12.0</td><td>89.3</td><td>90.7</td></tr> <tr><td>15.0</td><td>87.6</td><td>89.8</td></tr> <tr><td>18.0</td><td>85.7</td><td>88.7</td></tr> <tr><td>20.0</td><td>84.6</td><td>88.1</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>				Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	8.5	89.3	89.5	9.0	90.3	90.7	10.0	90.2	90.9	12.0	89.3	90.7	15.0	87.6	89.8	18.0	85.7	88.7	20.0	84.6	88.1	--	-	-	--	-	-
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Model	MGS301212
Item	Efficiency (by Load Current)
Object	_____



Temperature 25°C
Testing Circuitry Figure A

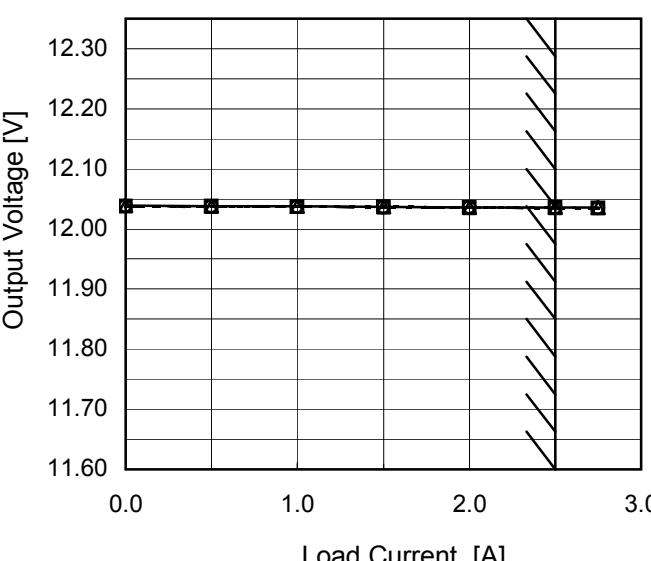
2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.00	-	-	-
0.50	84.4	82.5	77.1
1.00	89.4	88.0	84.2
1.50	90.7	90.0	86.9
2.00	91.0	90.5	88.3
2.50	90.7	90.6	88.7
2.75	90.5	90.5	88.9
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

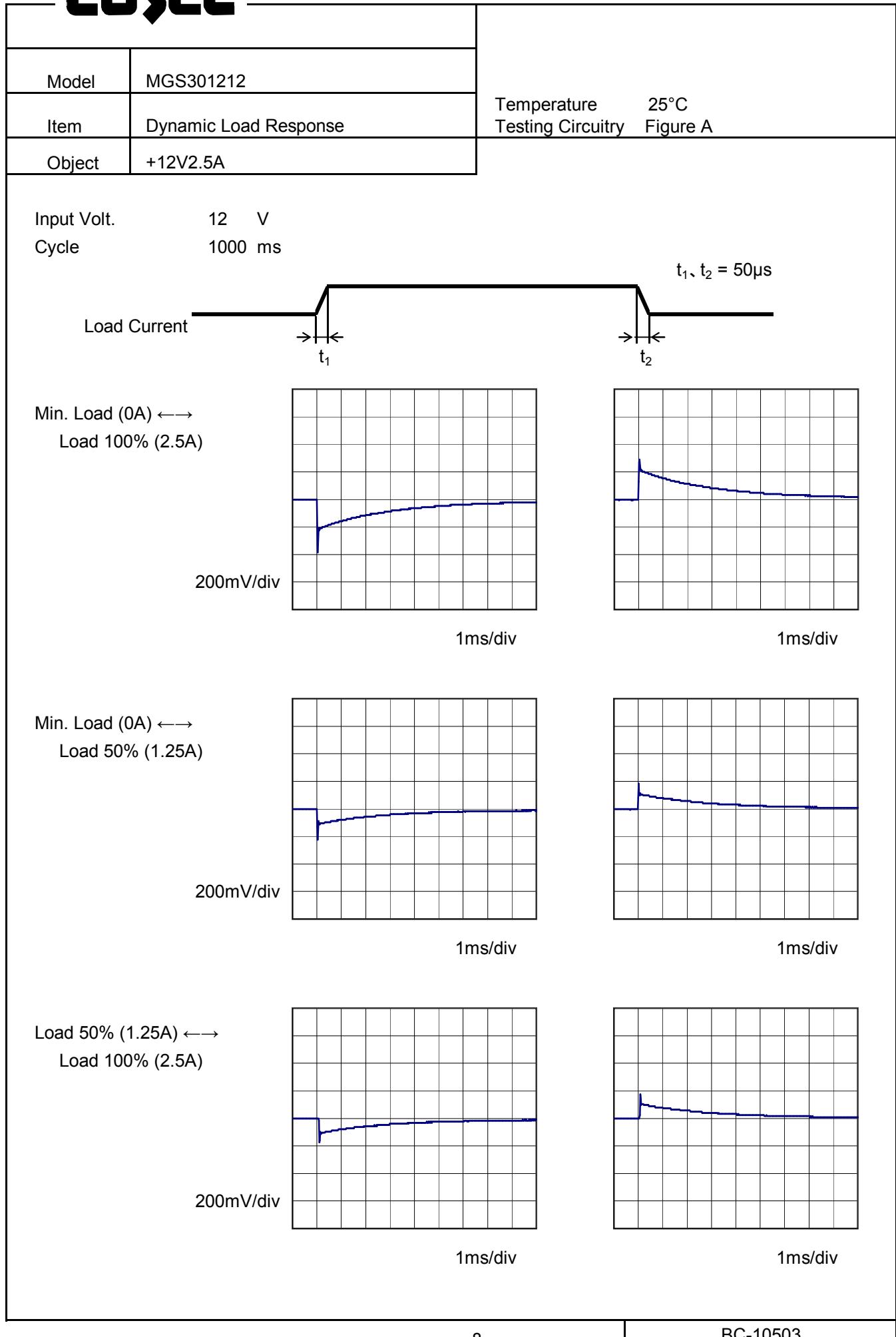
Note: Slanted line shows the range of the rated load current.

Model	MGS301212	Temperature Testing Circuitry 25°C Figure A																																
Item	Line Regulation																																	
Object	+12V2.5A																																	
1.Graph		2.Values																																
<p>Output Voltage [V]</p> <p>Input Voltage [V]</p> <p>Legend: - - - □ - - Load 50% — △ — Load 100%</p>		<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Output Voltage [V]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr> <td>8.5</td><td>12.037</td><td>12.035</td> </tr> <tr> <td>9.0</td><td>12.037</td><td>12.035</td> </tr> <tr> <td>10.0</td><td>12.037</td><td>12.035</td> </tr> <tr> <td>12.0</td><td>12.036</td><td>12.035</td> </tr> <tr> <td>15.0</td><td>12.036</td><td>12.035</td> </tr> <tr> <td>18.0</td><td>12.036</td><td>12.035</td> </tr> <tr> <td>20.0</td><td>12.036</td><td>12.035</td> </tr> <tr> <td>--</td><td>-</td><td>-</td> </tr> <tr> <td>--</td><td>-</td><td>-</td> </tr> </tbody> </table>	Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	8.5	12.037	12.035	9.0	12.037	12.035	10.0	12.037	12.035	12.0	12.036	12.035	15.0	12.036	12.035	18.0	12.036	12.035	20.0	12.036	12.035	--	-	-	--	-	-
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Note: Slanted line shows the range of the rated input voltage.

Model	MGS301212	Temperature Testing Circuitry 25°C Figure A		
Item	Load Regulation			
Object	+12V2.5A			
1.Graph	<p style="text-align: center;"> —△— Input Volt. 9V ---□--- Input Volt. 12V ---○--- Input Volt. 18V </p>  <p>Output Voltage [V]</p> <p>Load Current [A]</p>	2.Values		
		Load Current [A]	Output Voltage [V]	
			Input Volt.	Input Volt.
		[A]	9[V]	12[V]
				18[V]
	0.00		12.039	12.038
	0.50		12.038	12.038
	1.00		12.037	12.037
	1.50		12.037	12.036
	2.00		12.036	12.036
	2.50		12.036	12.035
	2.75		12.035	12.035
	--		-	-
	--		-	-
	--		-	-
	--		-	-

Note: Slanted line shows the range of the rated load current.

COSEL

COSSEL

Model	MGS301212	Temperature Testing Circuitry 25°C Figure B																																						
Item	Ripple Voltage (by Load Current)																																							
Object	+12V2.5A																																							
1.Graph	<p style="text-align: center;">△ Input Volt. 9V ○ Input Volt. 18V</p>	2.Values																																						
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<p>Ripple [mVp-p]</p>																																								
<p>Fig.Complex Ripple Wave Form</p>																																								

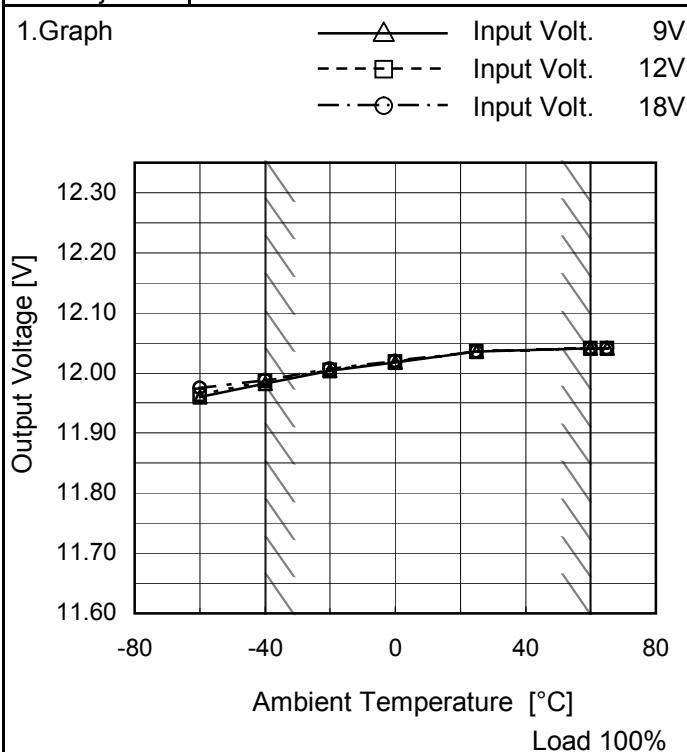
COSEL

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<p>Ripple-Noise is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.</p>																																									
<p>Fig.Complex Ripple Noise Wave Form</p>																																									

COSEL

Model	MGS301212																																							
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure B																																						
Object	+12V2.5A																																							
1.Graph																																								
<p>---□--- Load 50%</p> <p>△ Load 100%</p> <p>Ripple Voltage [mV]</p> <p>Ambient Temperature [°C]</p> <p>Input Volt. 12V</p>																																								
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Note: Slanted line shows the range of the rated ambient temperature.																																								

Model	MGS301212
Item	Ambient Temperature Drift
Object	+12V2.5A



Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
-60	11.960	11.964	11.975
-40	11.983	11.986	11.988
-20	12.003	12.005	12.007
0	12.018	12.019	12.020
25	12.035	12.035	12.035
60	12.041	12.041	12.041
65	12.041	12.041	12.042
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Note: Slanted line shows the range of the rated ambient temperature.



Model	MGS301212	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+12V2.5A	

1. Output Voltage Accuracy

This is defined as the value of the output voltage, regulation load, ambient temperature and input voltage varied at random in the range as specified below.

Temperature : -40 - 60°C

Input Voltage : 9 - 18V

Load Current : 0 - 2.5A

* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

$$* \text{ Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

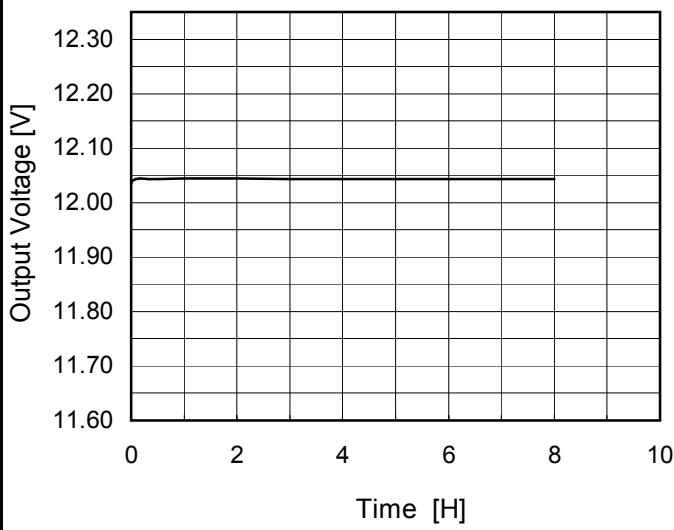
2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	9	0	12.041	±30	±0.3
Minimum Voltage	-40	18	0	11.982		

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Model	MGS301212
Item	Time Lapse Drift
Object	+12V2.5A

1. Graph



Input Volt. 12V
Load 100%

Temperature 25°C
Testing Circuitry Figure A

2. Values

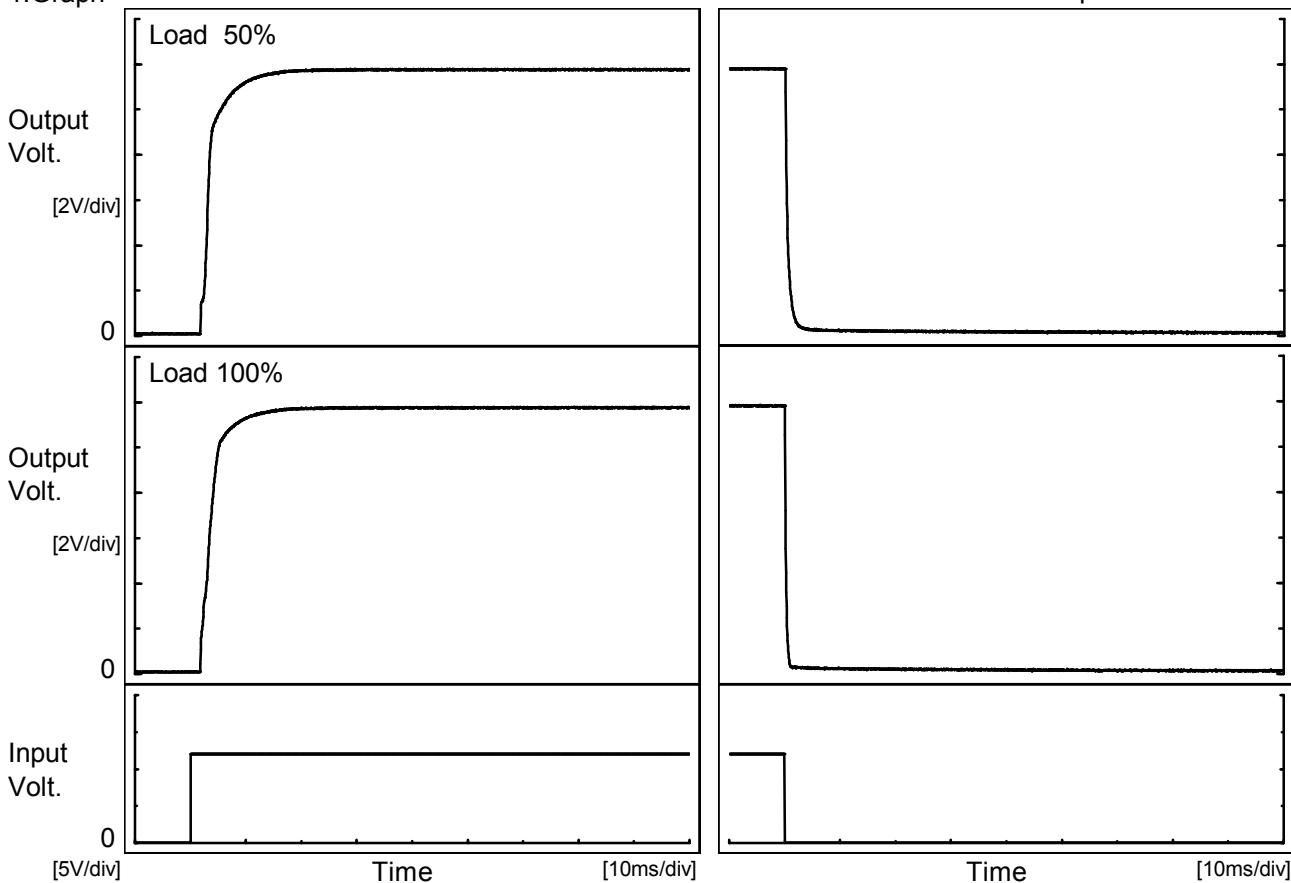
Time since start [H]	Output Voltage [V]
0.0	12.035
0.5	12.044
1.0	12.044
2.0	12.044
3.0	12.044
4.0	12.044
5.0	12.044
6.0	12.043
7.0	12.043
8.0	12.043

COSEL

Model	MGS301212
Item	Rise and Fall Time
Object	+12V2.5A

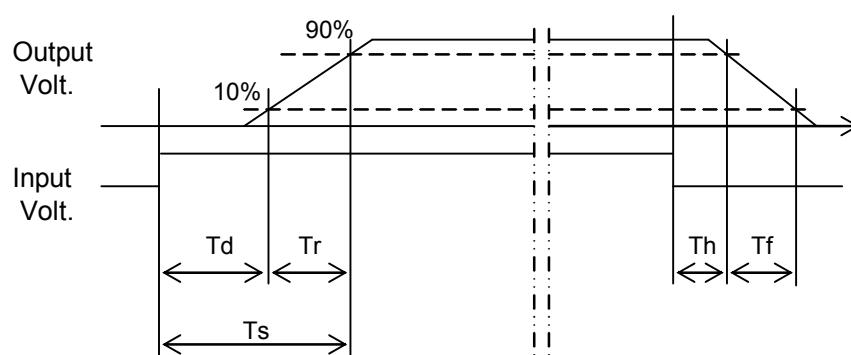
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

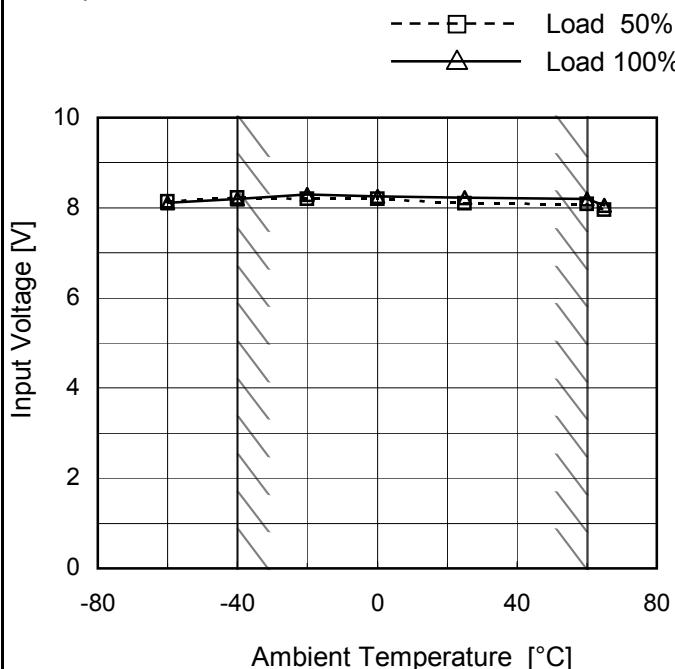
Load	Time	Td	Tr	Ts	Th	Tf
50 %		2.0	6.3	8.3	0.1	1.2
100 %		1.9	5.5	7.4	0.1	0.5



Model	MGS301212
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V2.5A

Testing Circuitry Figure A

1. Graph

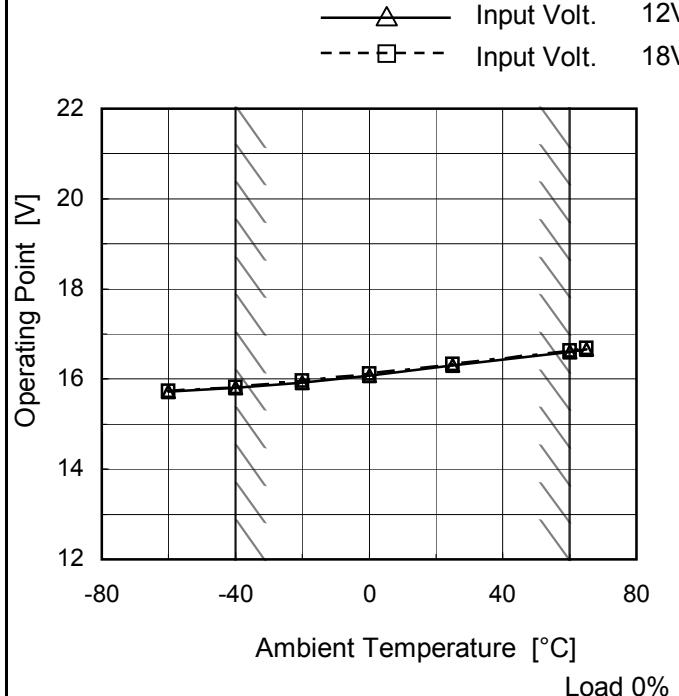


2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.2	8.2
-40	8.3	8.2
-20	8.2	8.3
0	8.2	8.3
25	8.1	8.3
60	8.1	8.2
65	8.0	8.1
--	-	-
--	-	-
--	-	-
--	-	-

Note: Slanted line shows the range of the rated ambient temperature.

Model	MGS301212																																																									
Item	Overcurrent Protection																																																									
Object	+12V2.5A																																																									
1. Graph																																																										
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Object	+12V2.5A																																							
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 <p>Operating Point [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 0%</p> <p>Legend:</p> <ul style="list-style-type: none"> Input Volt. 12V (Solid Line) Input Volt. 18V (Dashed Line) 																																								
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COSEL

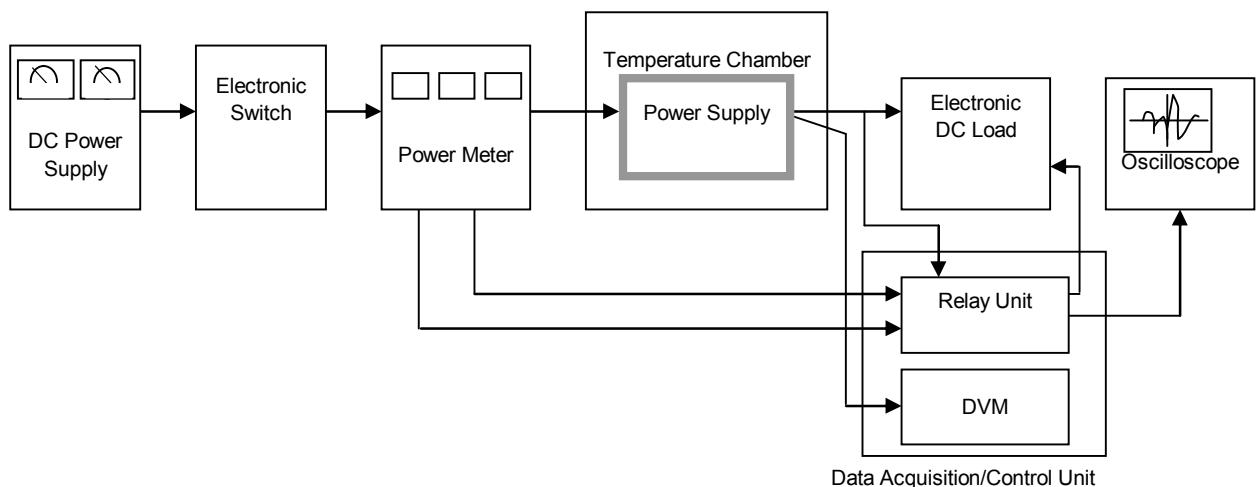


Figure A

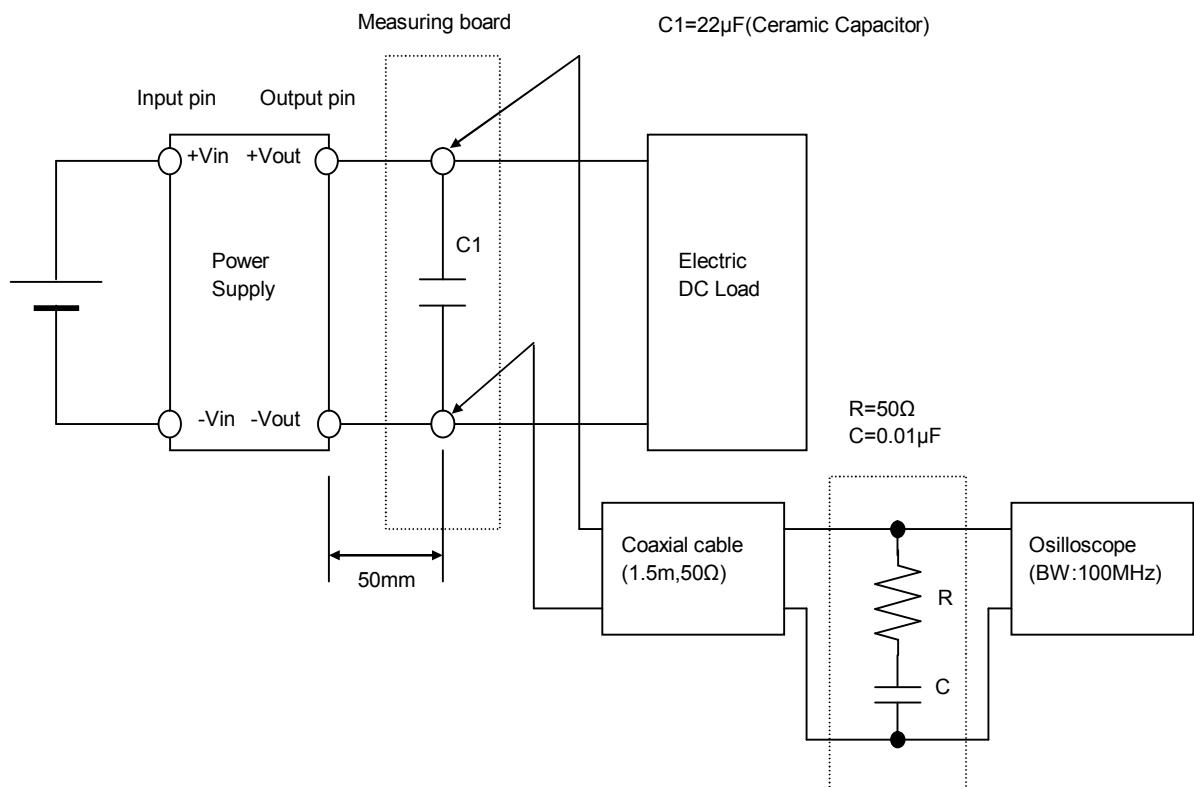


Figure B (Ripple and Ripple noise Characteristic)